Applications

Temporal slope-control!

Improvement of drainage system and embankment stability!

Reinforcement of existing slopes!

Long-term safety of natural slopes!

Chiyoda-Kizai,Inc.

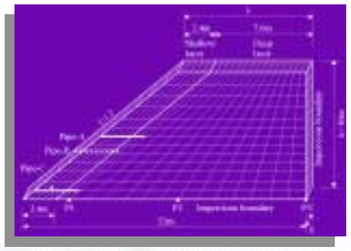
http://www.chiyoda-kizai.co.jp

4-13-7, Minami-Shinagawa, Shinagawa-ku,
Tokyo140-0004, JAPAN

Phone +81-3-3474-1511 / Fax +81-3-3474-0062

Pipe - Nail method

The drainage pipes with the slope reinforcement function



Chiyoda-Kizai, Inc.

Pipe - Nail method has two functions : drainage and slope reinforcement with steel pipes.

- No scaffold needed
- Less labor required
- Installed by adding pressure or percussive force

Key Features

Versatility as drainage and slope reinforcement

A steel pipe with slots provides a sufficient drainage function in slopes. Additionaly,the strength and durability of the steel pipe improves the stability of slopes,as soil nails.

No need of pre-boring

The pipe featuring pointed-end allows installation without pre-boring and thus increases efficiency of construction.

Construction without heavy equipment and scaffold

The Pipe and Nail method requires neither heavy-duty equipment nor scaffold during installation. The method is , therefore , efficient even in a small construction space.

Great work efficiency

The simple installation method eliminates labors required for standard methods such as moving and setting up drill equipment. Work efficiency, 20-30 pieces/day , can be expected from the Pipe and Nail method.

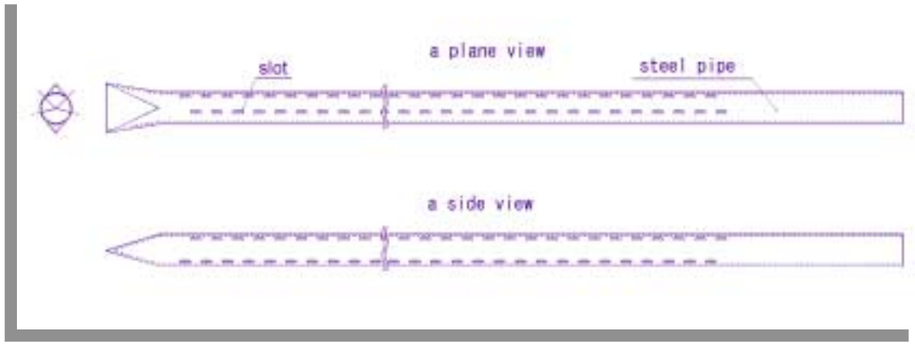
Cost effective

The Pipe and Nail method can reduce construction expenses to as low as approximately 30% of the conventional technique.

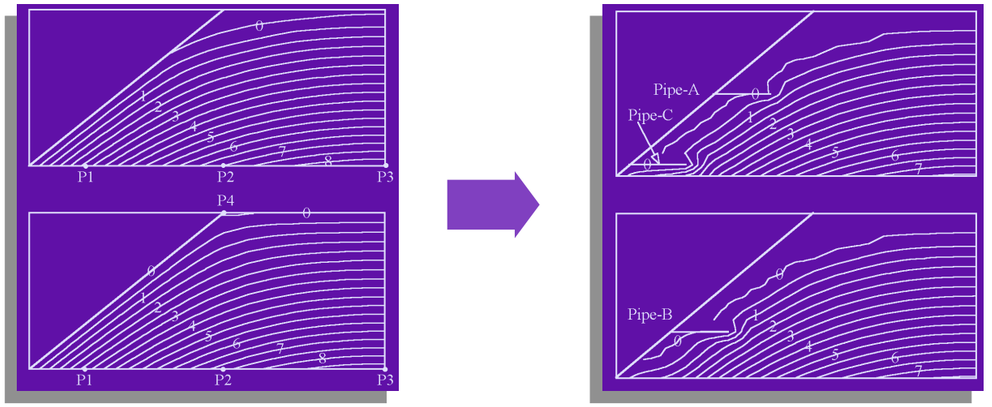
Applicable to both temporary and permanent structures

The method is effective to temporarily prevent a slope failure. The pipe could also serve as a permanent structure when corrosion is taken into account.

Specification

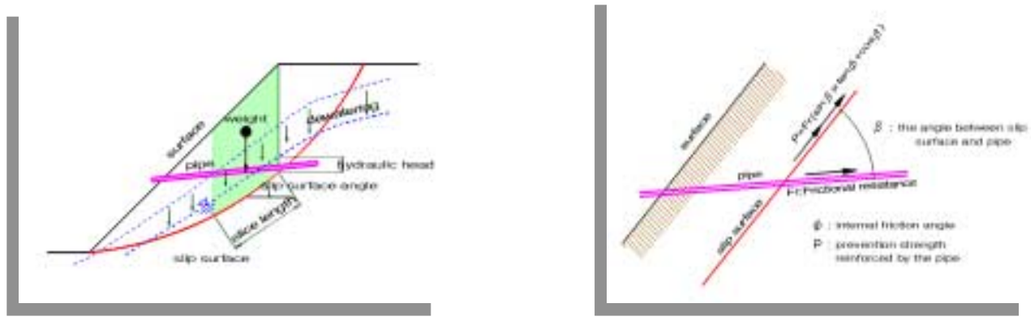


Verifications



Contour maps of change in hydraulic head(m) across a slope without pipes(Ugai and Cai,2001)

Contour maps of change in hydraulic head(m) across a slope with pipes(Ugai and Cai,2001)



Schematic representation of a slope stability analysis showing the reinforcement capability of the drainage pipe